DINOSAURS!

• DISCOVER THE GIANTS OF THE PREHISTORIC WORLD •

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DINOSAURS!

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IDENTIKIT

Your guide to three more popular dinosaurs

TRICERATOPS 25
STRUTHIOMIMUS 28
CAMPTOSAURUS 29

DINOSAUR WORLD

The three ages of the dinosaur

DINOSAUR TIME 30
THE TIME OF THE GIANTS 32
MONSTERS AND FLOWERS 33

SPOTTER'S GUIDE

Large and small, light and heavy: compare the shapes and sizes of three different dinosaurs

ALL SHAPES AND SIZES 38

TIME DETECTIVE

Join a dig and find out how scientists discover a dinosaur

DISCOVERING A DINOSAUR 40
DIGGING UP A DINOSAUR 42

HISTORY IN PICTURES

MONSTERS IN THE PARK
How some life-sized dinosaurs came to be in a London park 44

A to Z

More dinosaurs for your collection: *Ammosaurus* to *Apatosaurus* 48

ASK THE EXPERT

Your questions answered by expert Dr David Norman BACK COVER

PLUS

GIANTS OF THE PAST

Triceratops takes on *T rex* in a full-action panorama 34

3-D Gallery

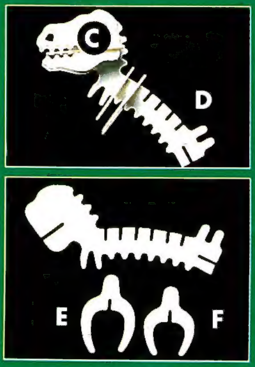
Use your 3-D glasses to bring two more dinosaurs leaping to life 36

DINO Fact File

Test your knowledge and try out the facts on your friends 46

HOW TO ASSEMBLE YOUR MODEL

Issue 2: The spine and two ribs.
Slot spine (D) into remaining slot of C. Insert ribs (E and F) in first two slits of spine.



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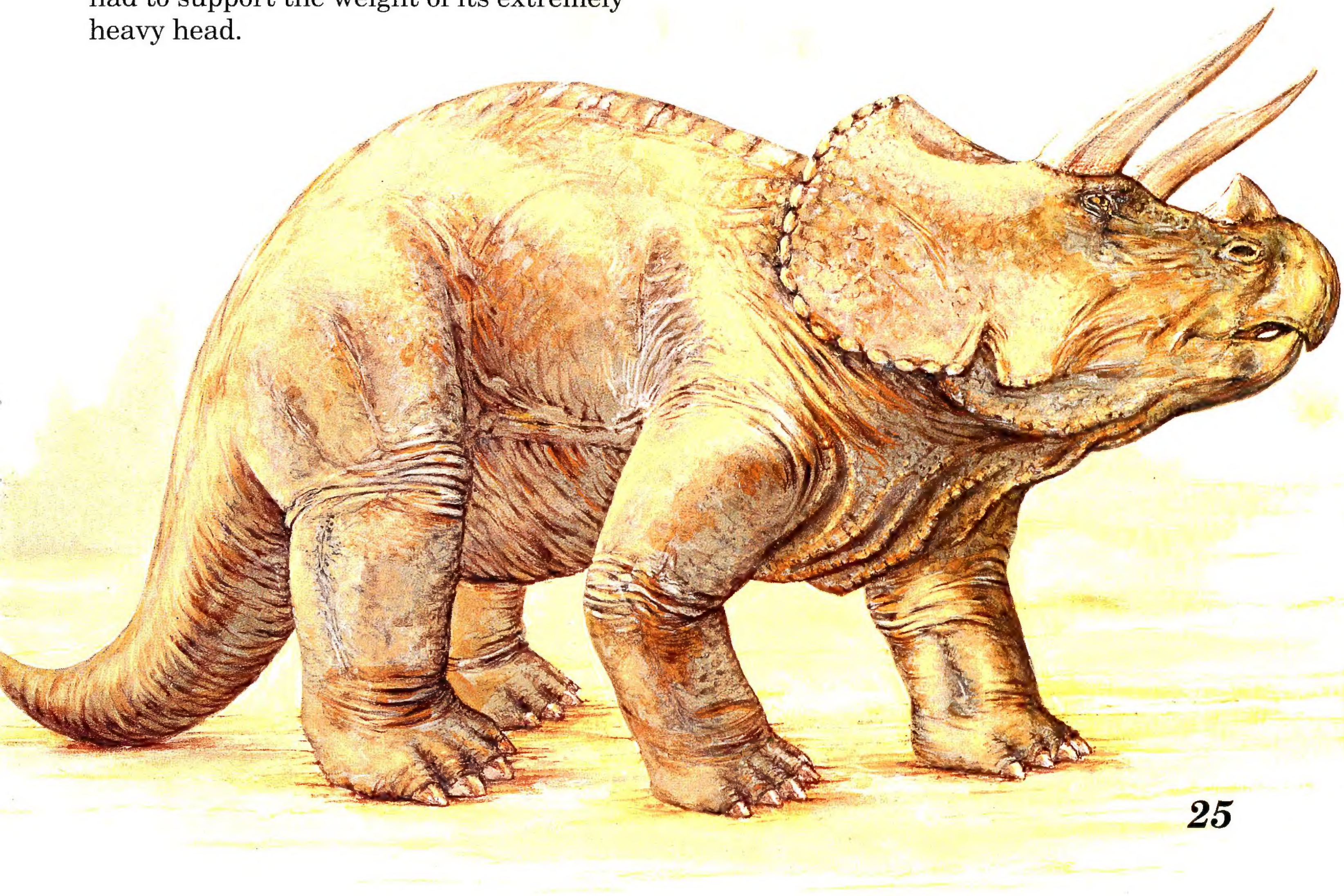
TRICERATOPS

***Triceratops* was a horned dinosaur. It was as long as two cars and weighed as much as five rhinoceroses.**

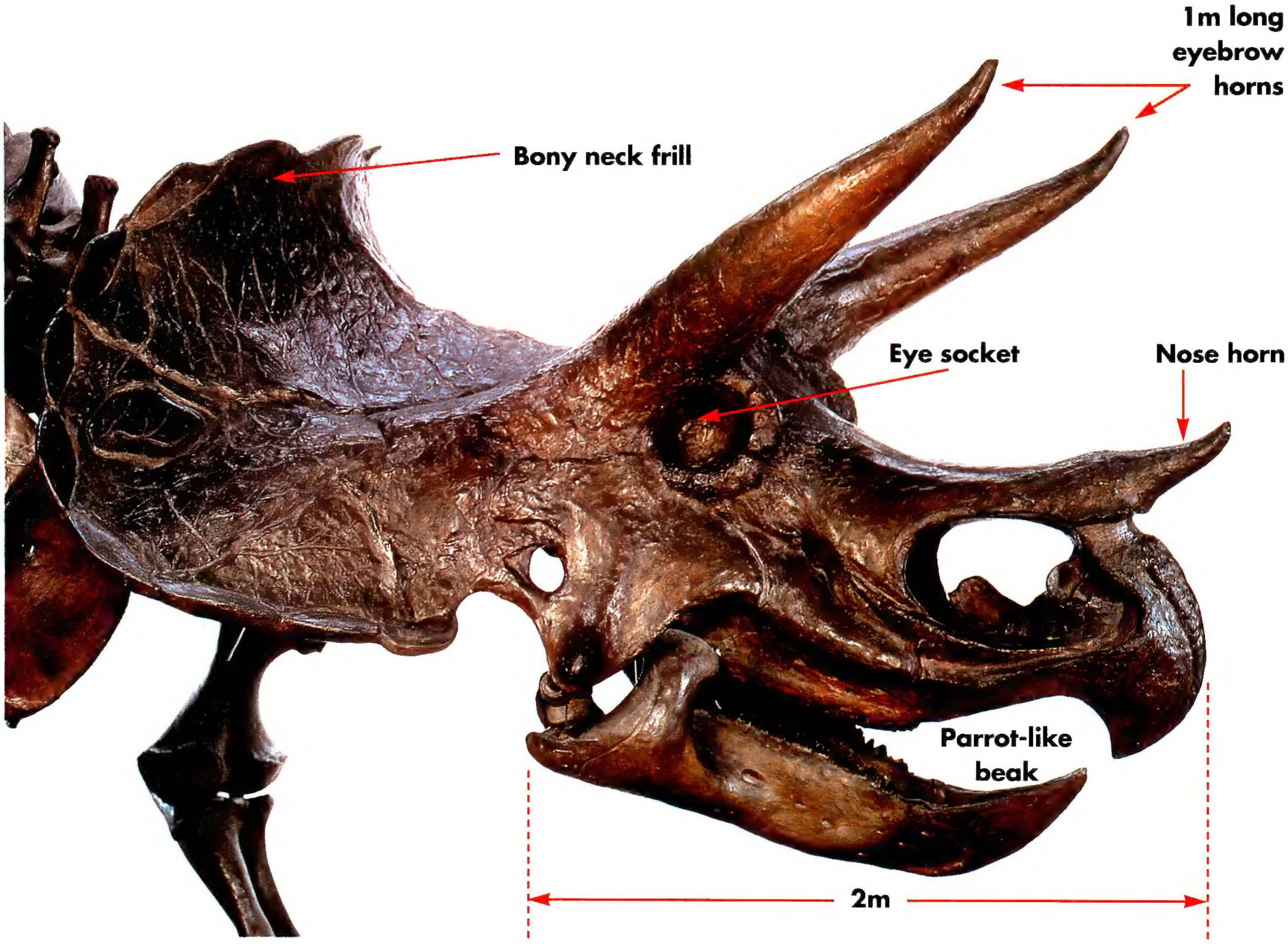
Triceratops was a large, powerful dinosaur. It had one horn on its nose, which was small and stumpy, and one above each eye, which were up to 1m long. *Triceratops* probably used these long horns as weapons. *Triceratops* walked on all fours and had sturdy pillar-like legs. Its front legs were especially strong because they had to support the weight of its extremely heavy head.

BONY FRILL

Around *Triceratops'* neck was a huge, bony frill which protected its shoulders and could withstand shattering blows from other dinosaurs. Although nobody really knows what colour dinosaurs were, some scientists think that *Triceratops'* neck frill was brightly coloured. They believe that *Triceratops* was so well armed, it didn't need to be a green or brown colour for camouflage, but had a brightly coloured frill to attract females.



18 CM THE LENGTH OF TRICERATOPS' NOSE HORN



BEAKS AND TEETH

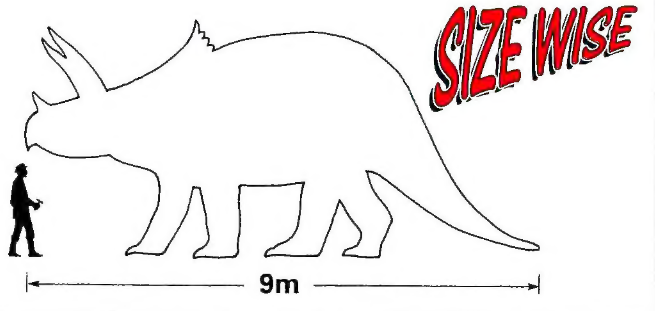
Triceratops was a herbivore. It nipped off shoots and leaves with its bony parrot-like beak. It ground them up with rows of teeth at the back of its mouth. As the teeth wore down, new ones grew in their place.

HORNED HEAD

On its massive head, *Triceratops* had three horns: one above each eye and another on the end of its nose. It used the horns to defend itself from hunting dinosaurs, such as *Tyrannosaurus rex*. It also used the horns to fight other male *Triceratops* for the females, before mating.

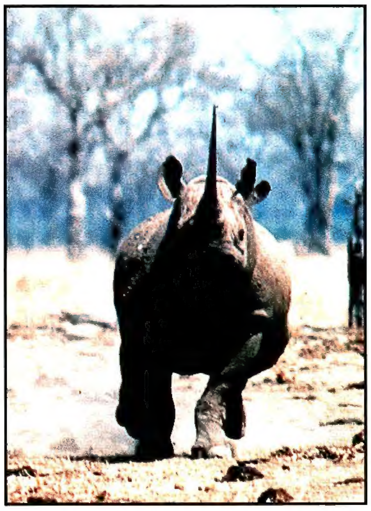
MONSTER FACTS

- **NAME:** *Triceratops* (try-serra-tops) means 'three-horned face'
- **SIZE:** up to 9m long and 3m high
- **FOOD:** all types of plants
- **LIVED:** 70 – 66 million years ago in the Late Cretaceous in North America



What is? A HERBIVORE

A herbivore is an animal that eats only plants. Herbivores eat many different kinds of plants, from grass to flowers and trees. They eat different parts of plants: leaves, shoots, roots and stalks. Cows are herbivores, so are elephants, rhinoceroses and giraffes. A herbivore's teeth are different shapes from those of a meat-eating animal. Many dinosaurs were herbivores, including *Iguanodon* and *Stegosaurus*.



A charging rhino is very dangerous. Imagine what a charge from giant *Triceratops* was like.

BRUISING BATTLE

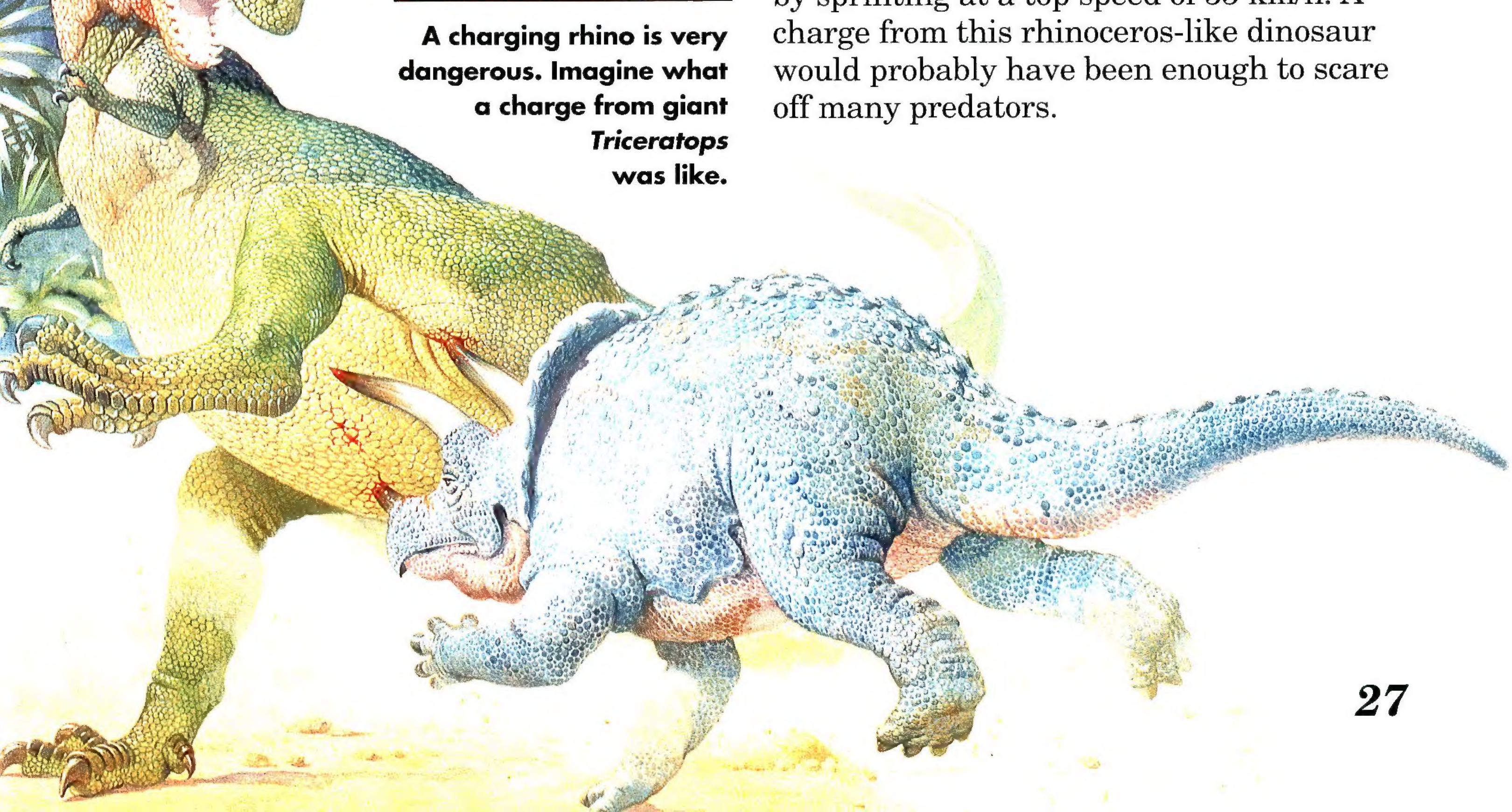
The males probably fought each other to become leader of a herd and to attract females. They did not use their horns to wound. Instead, two males shoved and butted each other with their massive heads, locking horns in a bruising battle to prove which was the strongest.

A *Triceratops'* neck frill would protect its shoulders and body from a head-on attack by another male. Scientists have found damaged neck frills, which show that these fights between males were fierce enough to cause injuries.

A FIERCE ENEMY

Even dinosaurs as large as *Tyrannosaurus rex* would have thought twice about attacking *Triceratops*, because it could cause serious wounds by stabbing the enemy with its sharp horns. *Triceratops* was well protected against attacking dinosaurs. Its bony neck frill was a good defence against sharp teeth and claws and it had tough skin with occasional hard knobs along its back.

Triceratops could charge at its enemies by sprinting at a top speed of 35 km/h. A charge from this rhinoceros-like dinosaur would probably have been enough to scare off many predators.



STRUTHIOMIMUS

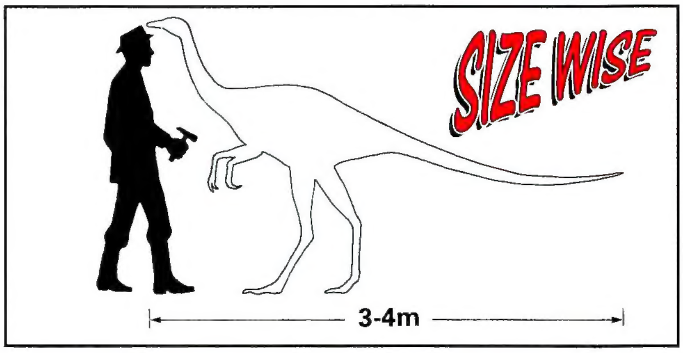
With its long neck, small head, beak and long legs, *Struthiomimus* looked rather like an ostrich.

Fast-moving *Struthiomimus* may have looked like a large bird, but it did not have wings or feathers and didn't fly. It ran on its two long back legs, gripping the ground with the curved claws on its toes.

Struthiomimus used its long thin, stiff tail to balance itself. It had two short, slim arms and long, three-fingered hands, which it probably used for reaching and picking up food.

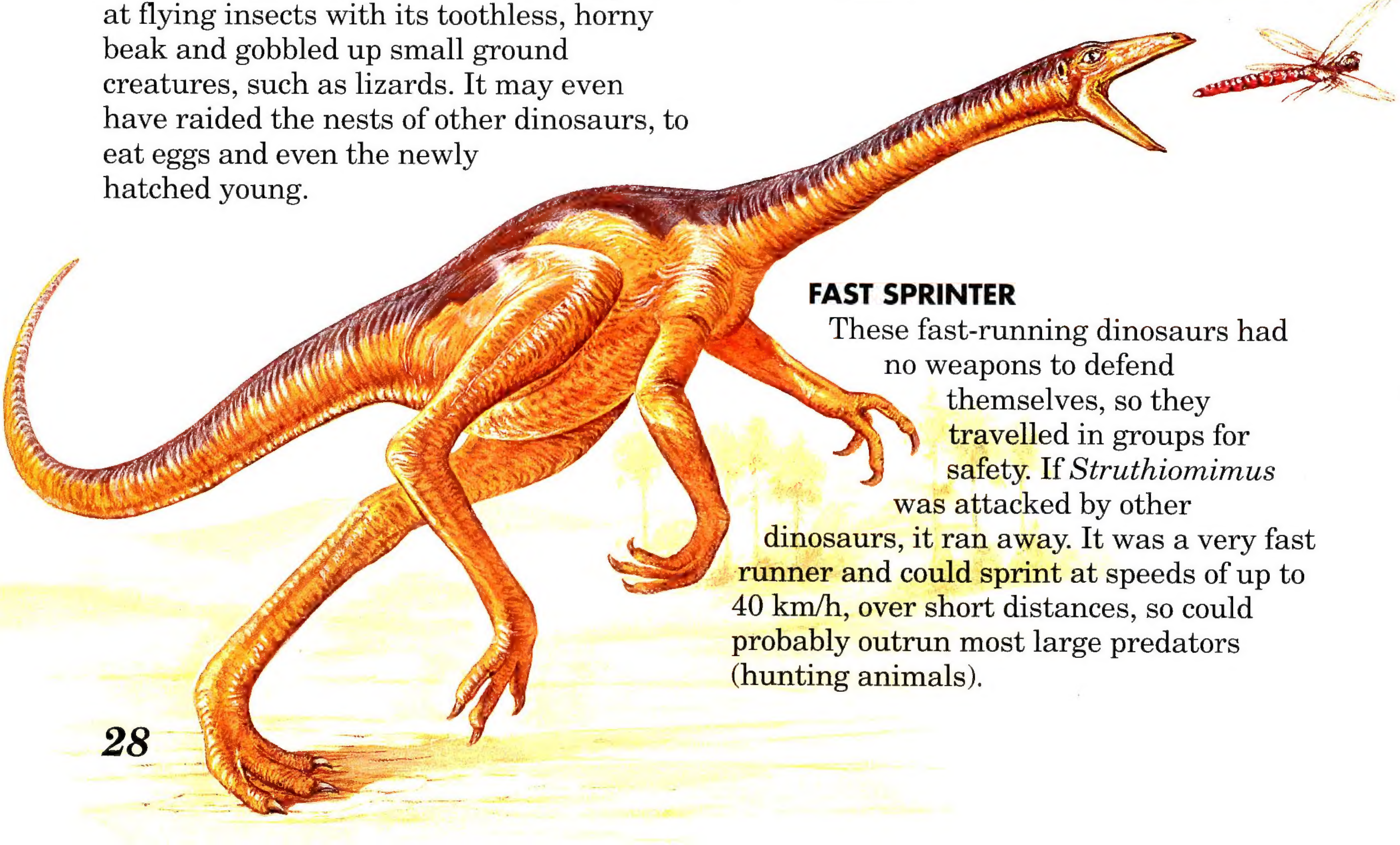
A VARIED DIET

Struthiomimus ate many things, including plants, seeds, nuts and fruits. It snapped at flying insects with its toothless, horny beak and gobbled up small ground creatures, such as lizards. It may even have raided the nests of other dinosaurs, to eat eggs and even the newly hatched young.



MONSTER FACTS

- **NAME:** *Struthiomimus* (strooth-ee-oh-mime-us) means 'ostrich mimic' because it looked, and probably moved, like an ostrich
- **SIZE:** 3 – 4m long and 2m high
- **FOOD:** plants, seeds, fruits, eggs and lizards
- **LIVED:** 80 – 66 million years ago in the Cretaceous Period in western North America



FAST SPRINTER

These fast-running dinosaurs had no weapons to defend themselves, so they travelled in groups for safety. If *Struthiomimus* was attacked by other dinosaurs, it ran away. It was a very fast runner and could sprint at speeds of up to 40 km/h, over short distances, so could probably outrun most large predators (hunting animals).

CAMPTOSAURUS

***Camptosaurus* was as tall as a camel and weighed as much as a pony.**

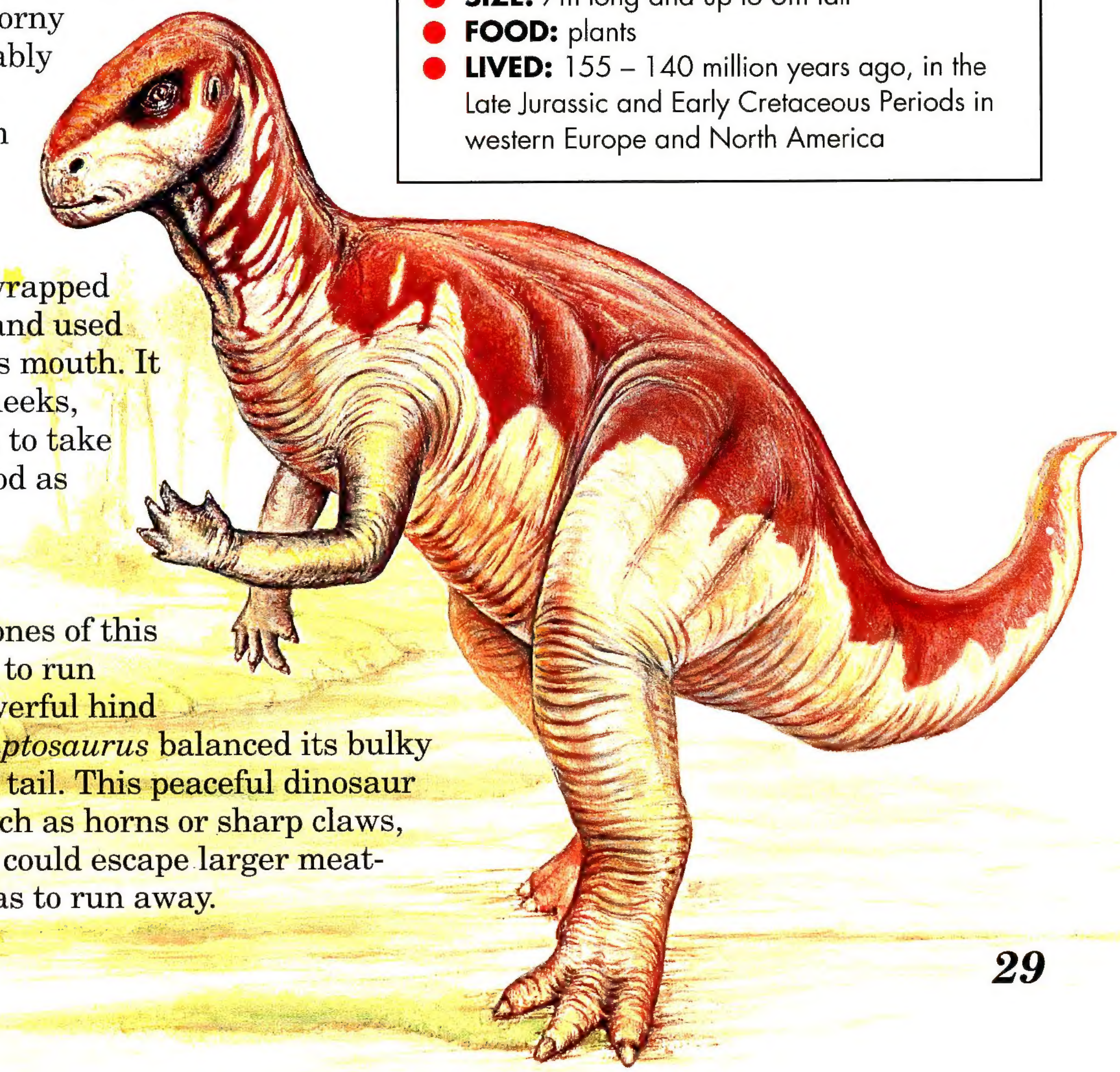
A peaceful, plant-eating dinosaur, *Camptosaurus* usually walked on its two back legs. However, it also had small hooves on its fingers and probably walked on all fours some of the time, especially when feeding on low-growing plants and on the lower leaves of trees.

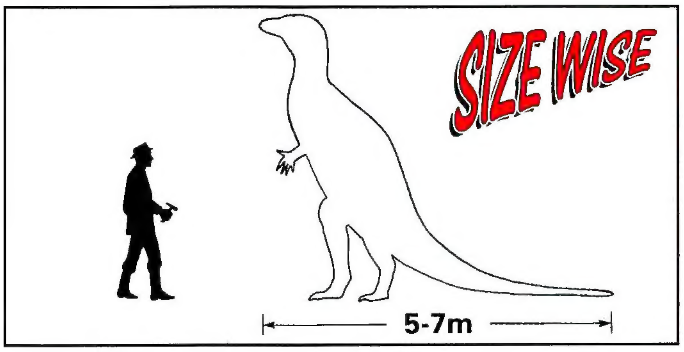
CHEEKS TO CHEW

Camptosaurus had a long, broad head with rows of ridged teeth. The tips of its jaws were covered by a horny beak, which it probably used to chop off the tough fern and palm leaves. Scientists think that *Camptosaurus* had a tongue, which it wrapped around the leaves, and used to drag them into its mouth. It also had stretchy cheeks, which could expand to take large amounts of food as it chewed.

CURVED THIGHS

The curved thigh bones of this dinosaur enabled it to run quite fast on its powerful hind legs. As it ran, *Camptosaurus* balanced its bulky body with its heavy tail. This peaceful dinosaur had no weapons, such as horns or sharp claws, and the only way it could escape larger meat-eating dinosaurs was to run away.





MONSTER FACTS

- **NAME:** *Camptosaurus* (camp-toe-saw-rus) means 'bent lizard' because of its curved thigh bones
- **SIZE:** 7m long and up to 6m tall
- **FOOD:** plants
- **LIVED:** 155 – 140 million years ago, in the Late Jurassic and Early Cretaceous Periods in western Europe and North America

Dinosaur time

Dinosaurs existed through three huge chunks of the Earth's history.

Scientists think that the Earth has existed for about 4,500 million years. To understand such a vast amount of time they divide it into Periods. The dinosaurs lived through three Periods: the **Triassic** (try-ass-ic), the **Jurassic** (joo-rass-ic) and the **Cretaceous** (cret-ay-shus). Dinosaurs first appeared near the end of the Triassic and finally died out at the end of the Cretaceous. Different kinds of dinosaurs lived during the three Periods.

CHANGING LANDSCAPES

During the 179 million years from the beginning of the Triassic to the end of the Cretaceous, the world changed greatly. Dinosaurs of the Triassic and Jurassic wandered through ferns, seed ferns, conifers and horsetails. The landscape was very different from our world today: there was no grass at all, instead, ferns covered the ground. During the Cretaceous new types of vegetation grew and dinosaurs lived among, and fed on, plants that we know today, such as willow, rose, magnolia, oak and grape vine.

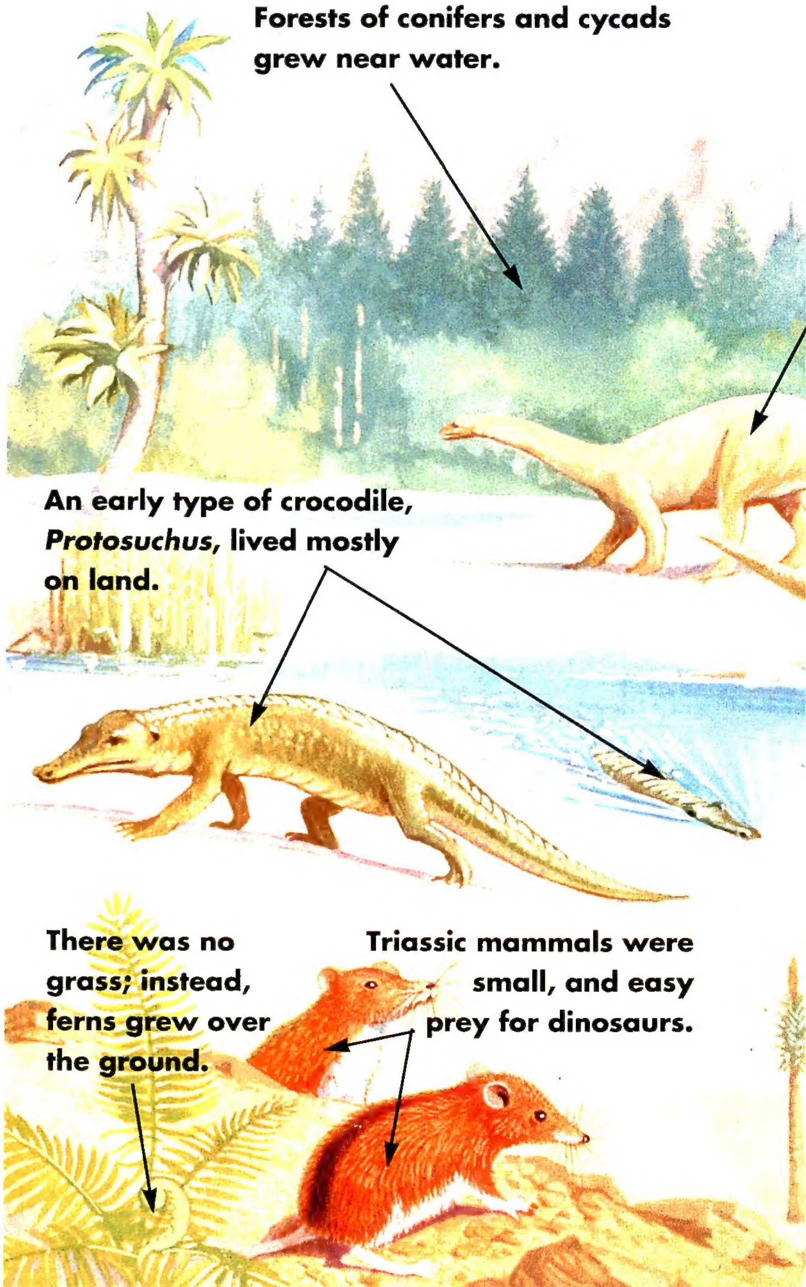
DINOSAUR CLIMATE

The climate in the Triassic, Jurassic and Cretaceous was warmer and wetter than it is now. There were no extremes of heat and cold, and not much difference between winter and summer. Nor were areas of the Earth covered in ice and snow, as our polar regions are.

The dinosaurs arrive

THE TRIASSIC: 245 – 204 MYA

At the end of the Triassic, when dinosaurs first appeared, there were vast areas of hot, dry desert. But near rivers and coasts there were lush forests of tree ferns. In drier areas there were thinner forests of conifers (cone-bearing trees), rather like the monkey-puzzle trees of today, and cycads, a palm-like plant. In these Triassic forests lived dinosaurs such as *Anchisaurus, Coelophysis* and *Saltopus.*



Forests of conifers and cycads grew near water.

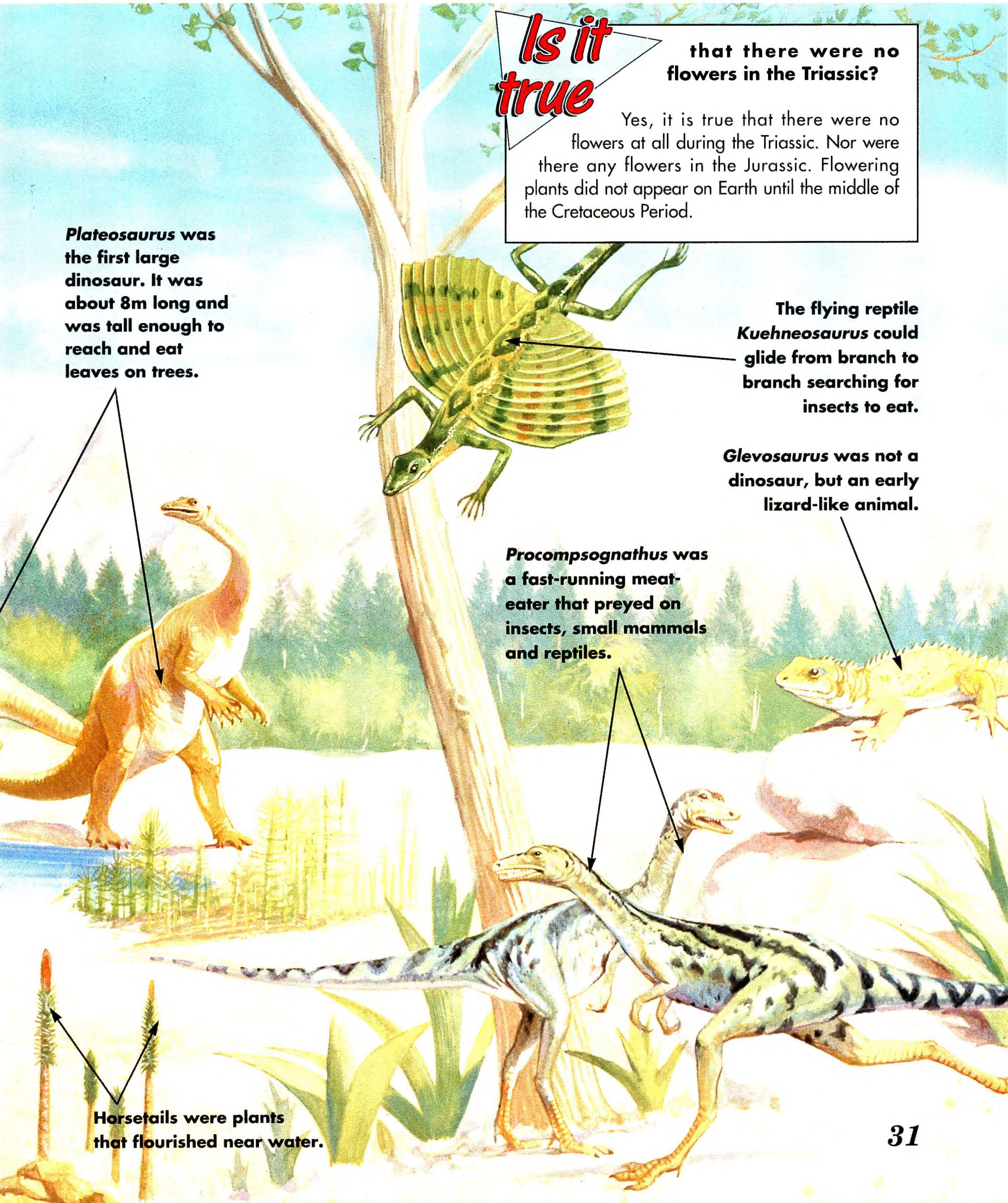
An early type of crocodile, *Protosuchus*, lived mostly on land.

There was no grass; instead, ferns grew over the ground.

Triassic mammals were small, and easy prey for dinosaurs.

Is it true that there were no flowers in the Triassic?

Yes, it is true that there were no flowers at all during the Triassic. Nor were there any flowers in the Jurassic. Flowering plants did not appear on Earth until the middle of the Cretaceous Period.



***Plateosaurus* was the first large dinosaur. It was about 8m long and was tall enough to reach and eat leaves on trees.**

The flying reptile *Kuehneosaurus* could glide from branch to branch searching for insects to eat.

***Glevosaurus* was not a dinosaur, but an early lizard-like animal.**

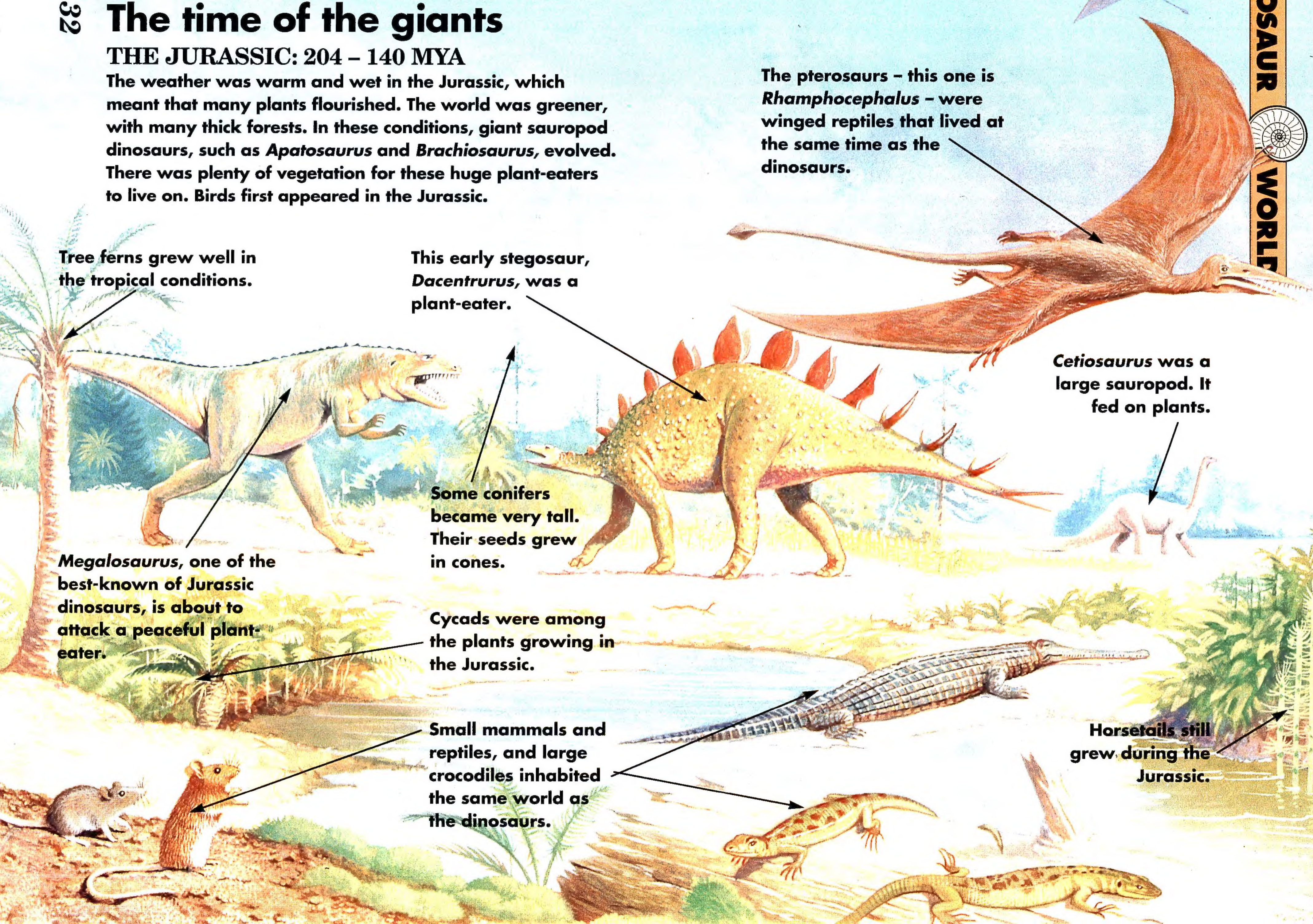
***Procompsognathus* was a fast-running meat-eater that preyed on insects, small mammals and reptiles.**

Horsetails were plants that flourished near water.

The time of the giants

THE JURASSIC: 204 – 140 MYA

The weather was warm and wet in the Jurassic, which meant that many plants flourished. The world was greener, with many thick forests. In these conditions, giant sauropod dinosaurs, such as *Apatosaurus* and *Brachiosaurus,* evolved. There was plenty of vegetation for these huge plant-eaters to live on. Birds first appeared in the Jurassic.



The pterosaurs – this one is *Rhamphocephalus* – were winged reptiles that lived at the same time as the dinosaurs.

Tree ferns grew well in the tropical conditions.

This early stegosaur, *Dacentrurus,* was a plant-eater.

Cetiosaurus was a large sauropod. It fed on plants.

Some conifers became very tall. Their seeds grew in cones.

Megalosaurus, one of the best-known of Jurassic dinosaurs, is about to attack a peaceful plant-eater.

Cycads were among the plants growing in the Jurassic.

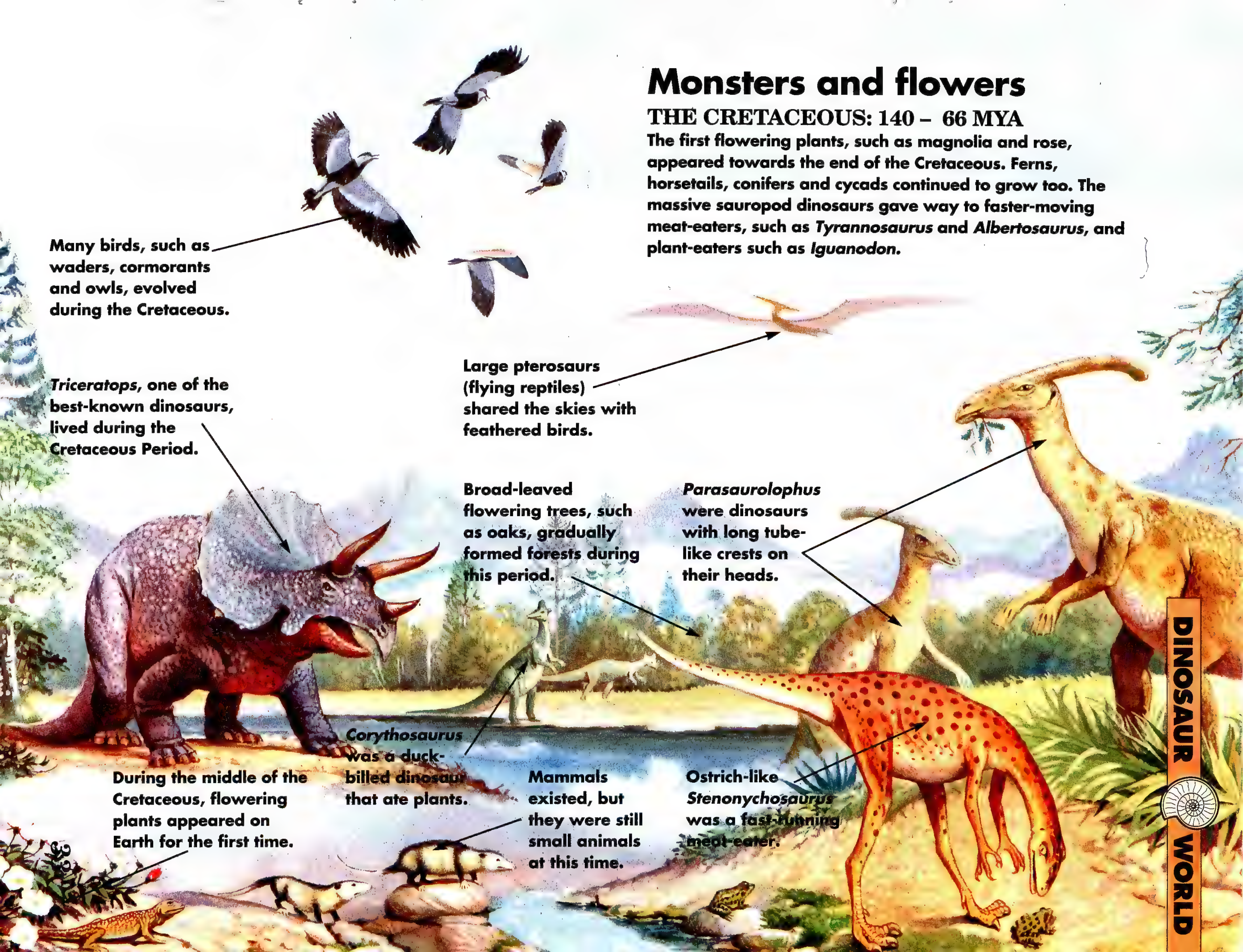
Small mammals and reptiles, and large crocodiles inhabited the same world as the dinosaurs.

Horsetails still grew during the Jurassic.

Monsters and flowers

THE CRETACEOUS: 140 – 66 MYA

The first flowering plants, such as magnolia and rose, appeared towards the end of the Cretaceous. Ferns, horsetails, conifers and cycads continued to grow too. The massive sauropod dinosaurs gave way to faster-moving meat-eaters, such as *Tyrannosaurus* and *Albertosaurus*, and plant-eaters such as *Iguanodon*.



Many birds, such as waders, cormorants and owls, evolved during the Cretaceous.

Large pterosaurs (flying reptiles) shared the skies with feathered birds.

Triceratops, one of the best-known dinosaurs, lived during the Cretaceous Period.

Broad-leaved flowering trees, such as oaks, gradually formed forests during this period.

Parasaurolophus were dinosaurs with long tube-like crests on their heads.

During the middle of the Cretaceous, flowering plants appeared on Earth for the first time.

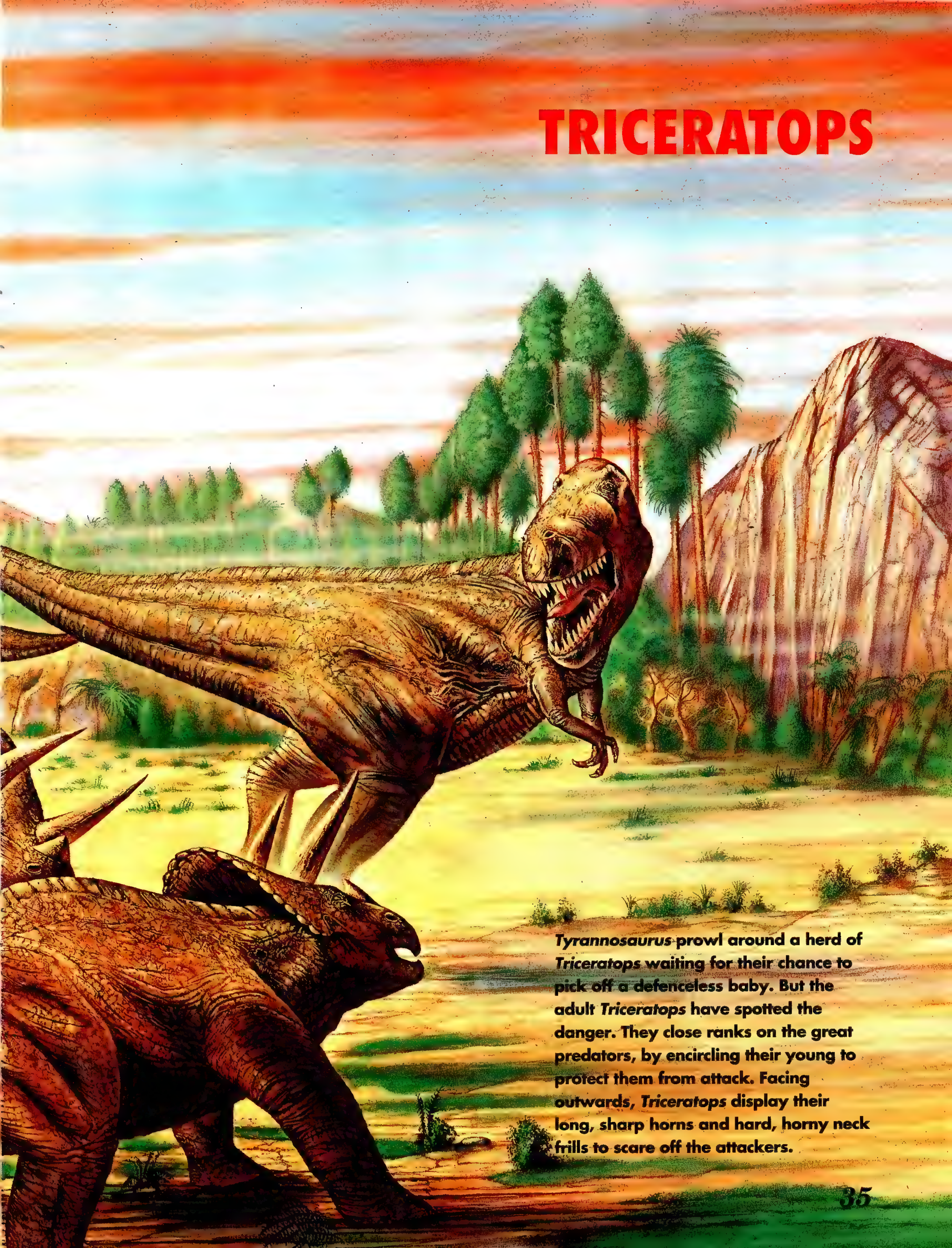
Corythosaurus was a duck-billed dinosaur that ate plants.

Mammals existed, but they were still small animals at this time.

Ostrich-like *Stenonychosaurus* was a fast-running meat-eater.

GIANTS OF THE PAST

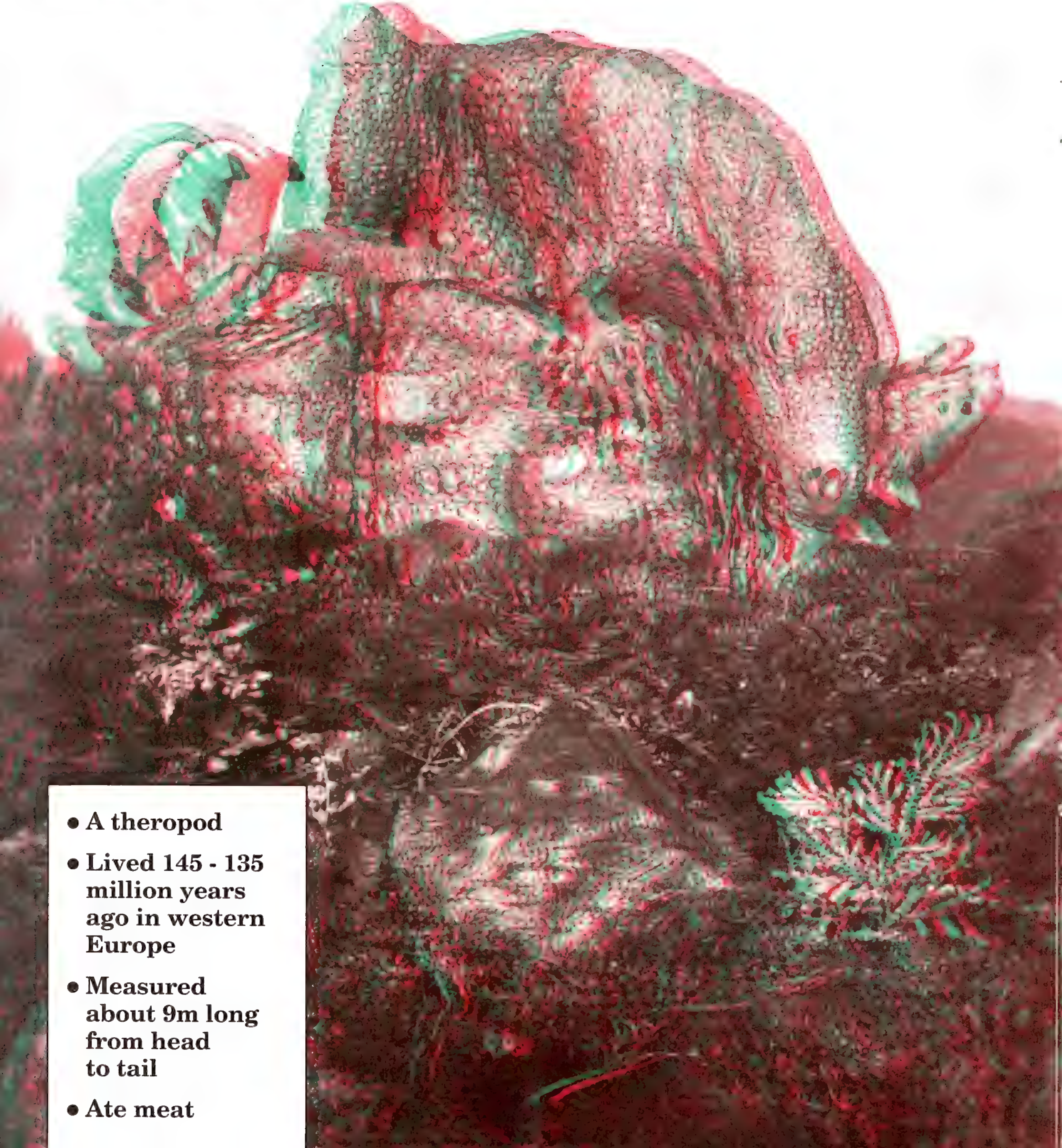
TRICERATOPS



Tyrannosaurus prowl around a herd of *Triceratops* waiting for their chance to pick off a defenceless baby. But the adult *Triceratops* have spotted the danger. They close ranks on the great predators, by encircling their young to protect them from attack. Facing outwards, *Triceratops* display their long, sharp horns and hard, horny neck frills to scare off the attackers.

3-D Gallery 3

MEGALOSAURUS



- A theropod
- Lived 145 - 135 million years ago in western Europe
- Measured about 9m long from head to tail
- Ate meat

3-D Gallery

4

BRACHIOSAURUS

- A sauropod
- Lived 150 - 130 million years ago in America and Africa
- Measured 23m long and 12m high
- Ate plants

All shapes and sizes

There is an amazing array of dinosaur shapes and sizes. Spot how each animal was suited to its lifestyle.

The different shapes and sizes of dinosaurs evolved to suit the way in which the animals lived. Tiny, agile *Compsognathus* lived on small animals and could move fast enough to catch them. *Allosaurus* was a huge, fierce and muscular dinosaur; while long-necked *Diplodocus* could reach the leaves that most other dinosaurs could not reach.

GIGANTIC AND SLOW

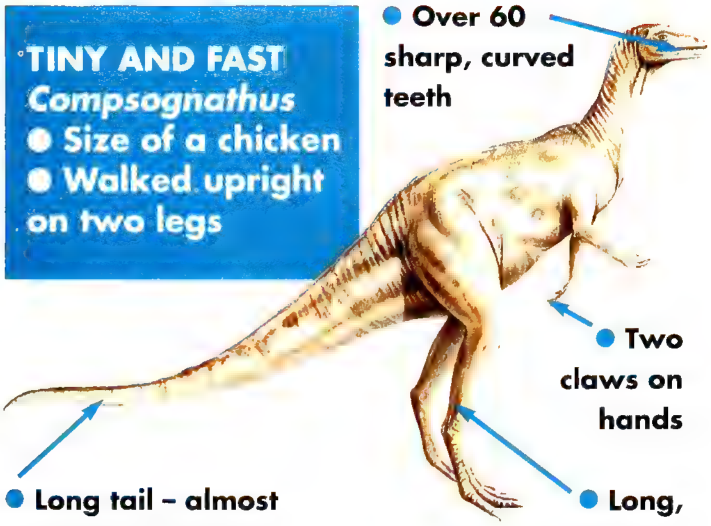
Diplodocus (di-plod-o-cus) had a very long neck and tail and reached 27m in length. It had a slender body and a tiny head for its size. *Diplodocus* needed to eat vast amounts of food to survive and had a huge stomach to digest all the leaves.

TINY AND FAST

Compsognathus (comp-sog-nay-thus) is one of the smallest dinosaurs to be discovered so far. It was a meat-eater, but it was light and could run very fast. It was a clever predator, which chased after, and fed on, lizards and insects.

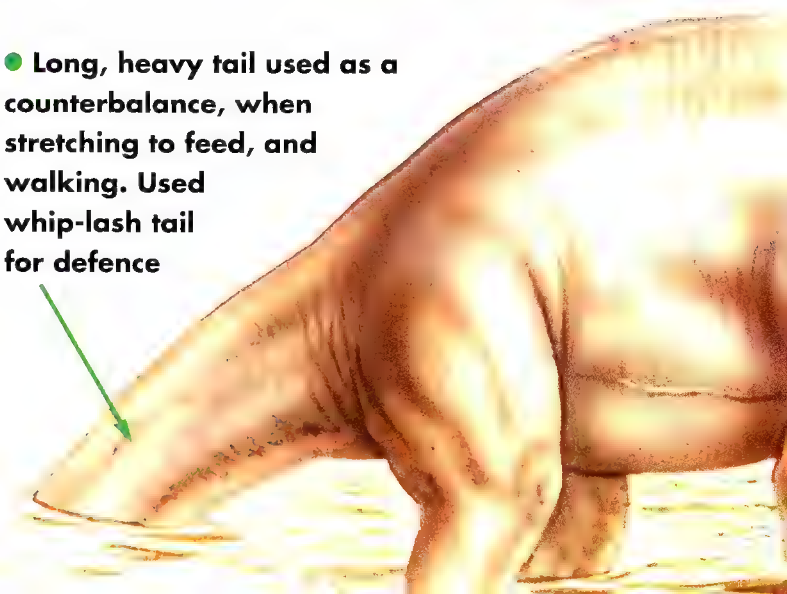
LARGE AND MUSCULAR

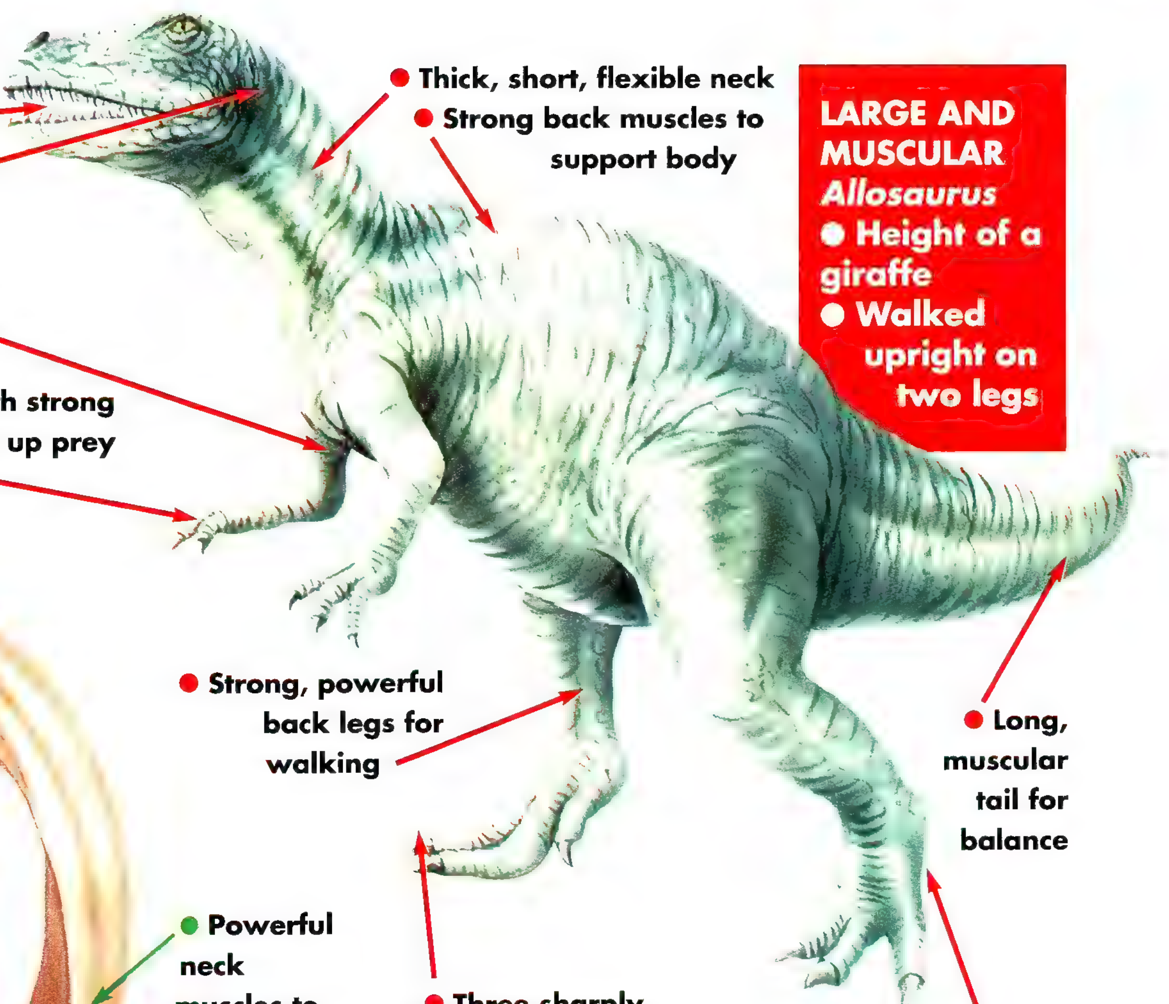
Dragon-like *Allosaurus* (al-oh-saw-rus) was a fierce meat-eater. It was strongly built so that it could attack and kill. It could not run fast for long distances, but probably caught smaller, younger or slow dinosaurs, or ate carrion (animals that are already dead).


TINY AND FAST
Compsognathus
● Size of a chicken
● Walked upright on two legs
● Over 60 sharp, curved teeth
● Two claws on hands
● Long tail – almost half the length of its body – for balance
● Long, light-boned back legs for speed

What is? A SAUROPOD

Sauropods, such as *Diplodocus*, *Apatosaurus* and *Ultrasaurus*, were among the longest, tallest and heaviest animals that have ever lived. Only the blue whale is bigger. Sauropods were plant-eating giants that had extremely long necks and tails, slim bodies and small heads. They were peaceful giants that lumbered through the forests feeding on the leaves. The word sauropod means 'reptile feet'.


● Long, heavy tail used as a counterbalance, when stretching to feed, and walking. Used whip-lash tail for defence


Huge jaws and wide, hinged mouth with 70 dagger-like teeth
Massive, powerful head held almost upright
Short, sturdy arms
3-fingered hands, with strong claws to grab and tear up prey
Thick, short, flexible neck
Strong back muscles to support body
Strong, powerful back legs for walking
Long, muscular tail for balance
Three sharply clawed toes point forward; one points back to spread weight
Fifth toe useless

LARGE AND MUSCULAR

Allosaurus

- Height of a giraffe
- Walked upright on two legs

Tiny head, held at an angle to neck
Weak jaws with thin peg-like teeth to comb vegetation into mouth
Powerful neck muscles to lift head up and down
Shoulders and forelimbs large and strong
Neck – 8m long
Backbone had extra strength to prevent massive body collapsing
Moved slowly on four pillar-like legs. Each was as big as three tree trunks
Five toes: first toe was large and sharp; others were padded with horn, like an elephant's foot

GIGANTIC AND SLOW

Diplodocus

- Size of four coaches
- Walked on four legs

What is? A THEROPOD

Theropods were all meat-eating bipedal (walking on two legs) dinosaurs. They were called theropods, which means 'beast foot', because of their sharply clawed toes. Large theropods, such as *Allosaurus*, *Tyrannosaurus rex* and *Megalosaurus*, had massive heads, powerful hind limbs, slender arms and long, muscular tails. Smaller theropods, such as *Compsognathus* and *Oviraptor*, were much more lightly built.

Discovering

Discovering a complete dinosaur skeleton is very rare, but once one has been found experts are needed to dig it up.

Finding a fossil dinosaur can be difficult detective work. First you must search for special sorts of rocks, such as sandstone or mudstone, 66 to 204 million years old. Experts look for traces of fossils, such as broken fragments of bone at the foot of cliffs, in hills or quarries, or down mines.

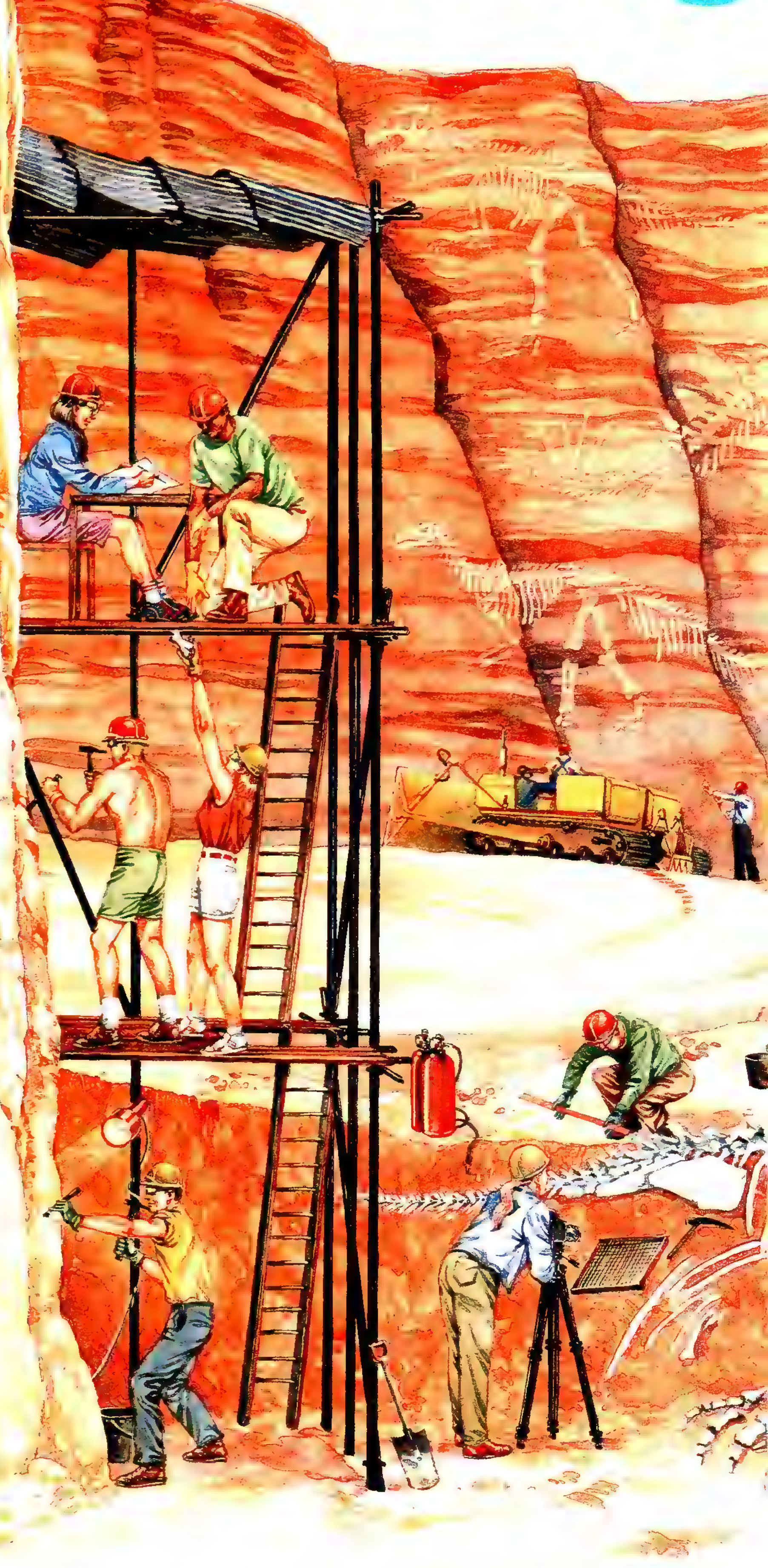
FREEING THE GIANT

A whole team of experts is needed to dig the fossil bones carefully out of the rock so that the giant skeleton can be pieced together like a jigsaw at the museum laboratory. Soon the site, or 'dig' as it is known, is busy with people.

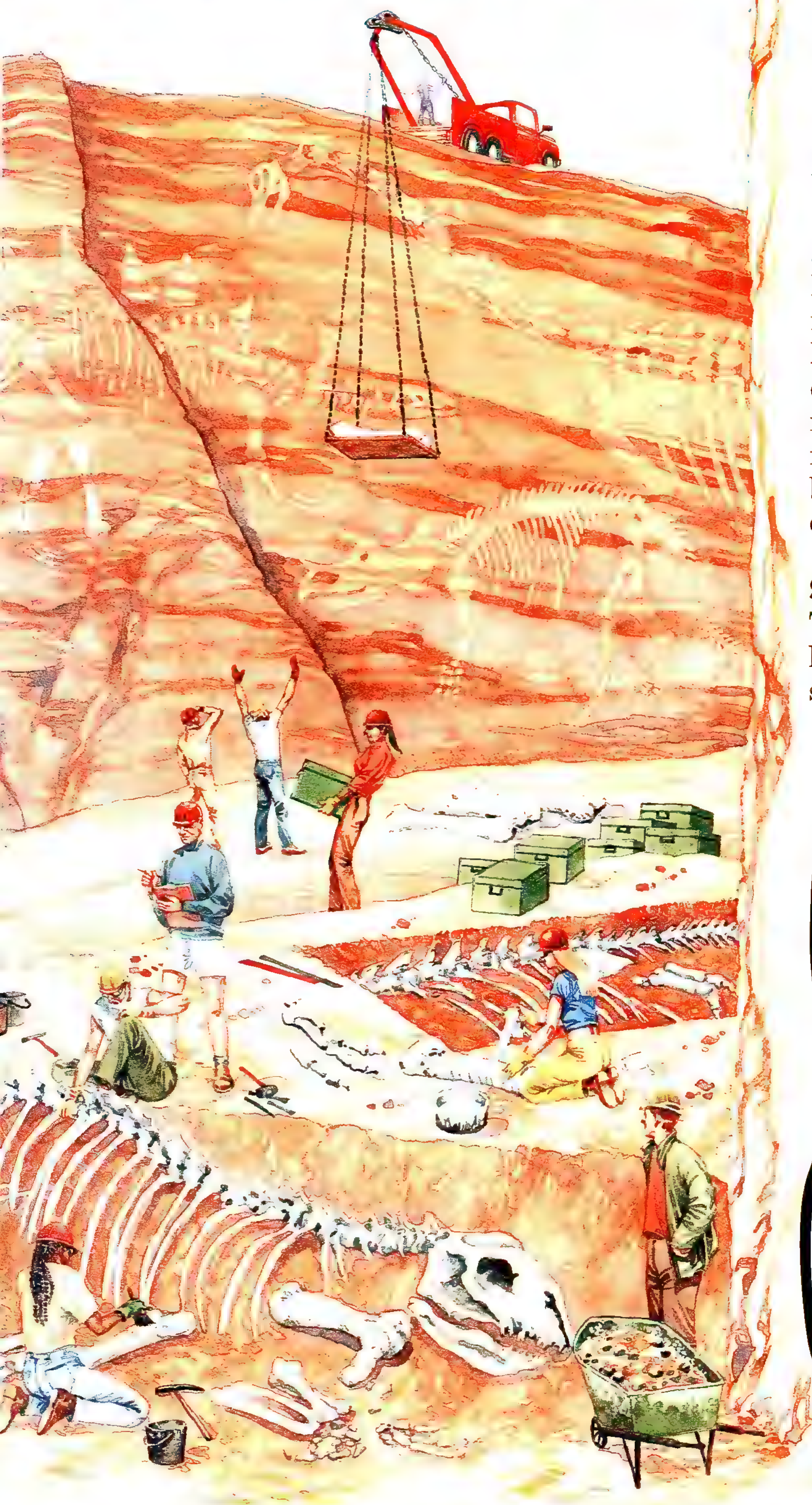
WHERE TO SEARCH

Fossil skeletons of dinosaurs are generally found in rocks that were being formed from mud and sand when dinosaurs were still alive. The dinosaur fossils are buried deep down in the lowest layers of the rock.

Palaeontologists do not dig holes all over the place in the hope of finding a fossil. First they look for the right kind of rock, then they let the wind and rain do their work for them. The best places to look for fossils are where the rock has been worn right down to its lower layers by the action of the wind and rain or waves. Sometimes large parts of a hill or cliff crumble away and reveal part of a fossil.



a dinosaur



TIME DETECTIVE

BEWARE, DANGER!

The places where fossils are most frequently found are often dangerous. Never go fossil hunting unless you are with an adult. And always get the owner's permission before you search on private land.

STRIKING IT LUCKY

Palaeontologists often go to quite remote parts of the world, such as Mongolia or China, to search for dinosaurs. But fossils can also be found by accident, by workmen making roads, quarry workers blasting for stone, or miners digging underground.

SPOT THE DINOSAURS

There are five more dinosaurs hidden in the picture. Can you spot them?

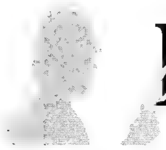
IT'S A FACT

CLAWS

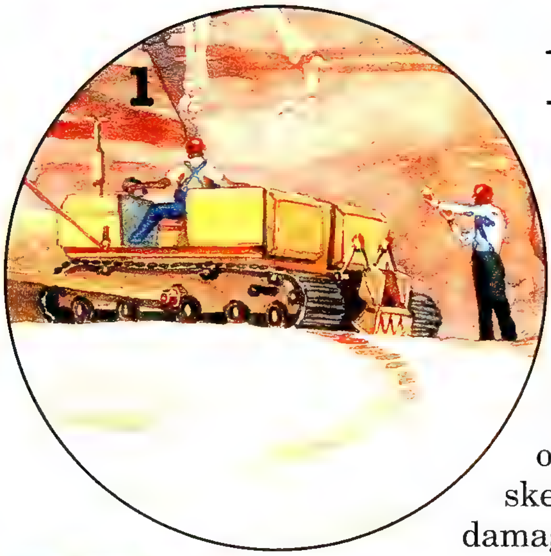
In 1983, a huge, sickle-shaped claw was found by accident, buried in a quarry in Surrey, England. It led to one of the most exciting recent dinosaur finds. Experts from the British Museum discovered the giant skeleton to which the claw belonged buried nearby. It was identified as a completely new dinosaur. They named it *Baryonyx walkeri* after Mr Walker who discovered the claw. *Baryonyx* was a meat-eater, as long as a bus.

Digging up a dinosaur

Most dinosaur fossils are embedded in rock. It can take many people several months to dig a large dinosaur out of the rock.



Everything we know about dinosaurs, from what they looked like, to what they ate, has come from what the experts have discovered through their 'digs'. Follow the footprints to find out how a dinosaur is dug up.

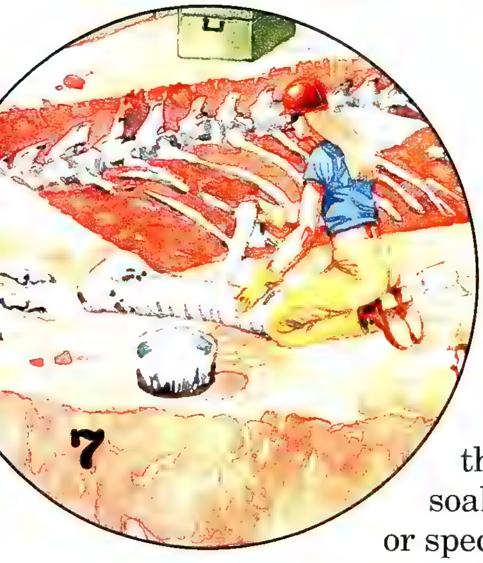


1 BLAST OFF

Many tonnes of rock may have to be blown up, or bulldozed to reach the fossil. Only the top layers of rock are blasted away, otherwise the fossil skeleton may be damaged.

2 SLOW BUT SURE

Great care must be taken to dig out the fossils without damaging them. Hammers, chisels and even dentist's drills are used to chip away the rock that encases the bones.



7 HANDLE WITH CARE

Once they are out of the ground, the bones are wrapped in tissue paper, then plaster-soaked bandages, or special foam jackets, that set hard to protect them on their journey to the laboratory.

6 PIECING TOGETHER THE JIGSAW

Every fossil piece must be numbered and recorded to help the scientists reconstruct the skeleton in the laboratory. It is slow and very painstaking work, but it is important.

Rocks from different periods of time build up in layers – the oldest at the bottom. Fossils are buried deep in each layer: the lower the layer, the older the fossils. Fast-flowing rivers can wear rock down and expose the layers with fossils buried deep inside. At the Grand Canyon (left), in the United States of America, the different rock layers are revealed in spectacular multi-coloured bands.

3 BRUSHWORK

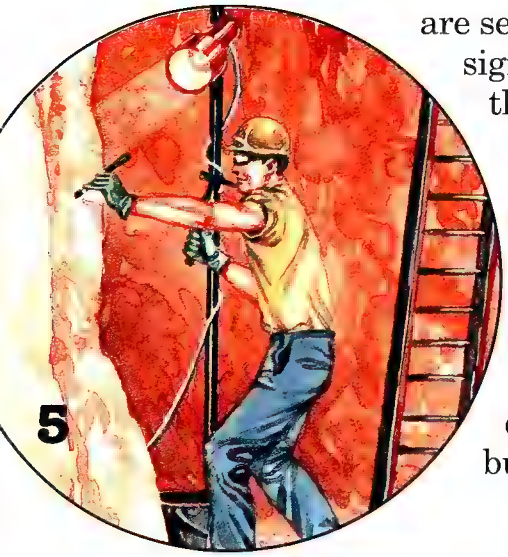
Soft brushes are used to clear away earth and stones. Brushes do not damage the ancient bones. Crumbly bones can be painted with special glues to harden them.

4 FOSSIL PHOTOS

The bones must be photographed in position before being moved, to show where they were found. Scientists can learn much about how the animal died and where it lived, from studying how it was lying, and by looking closely at the ground around it for clues.

5 SEARCHING FOR CLUES

The surrounding rocks are searched for signs of bones that might have broken away from the main skeleton – or maybe another fossil dinosaur buried nearby.

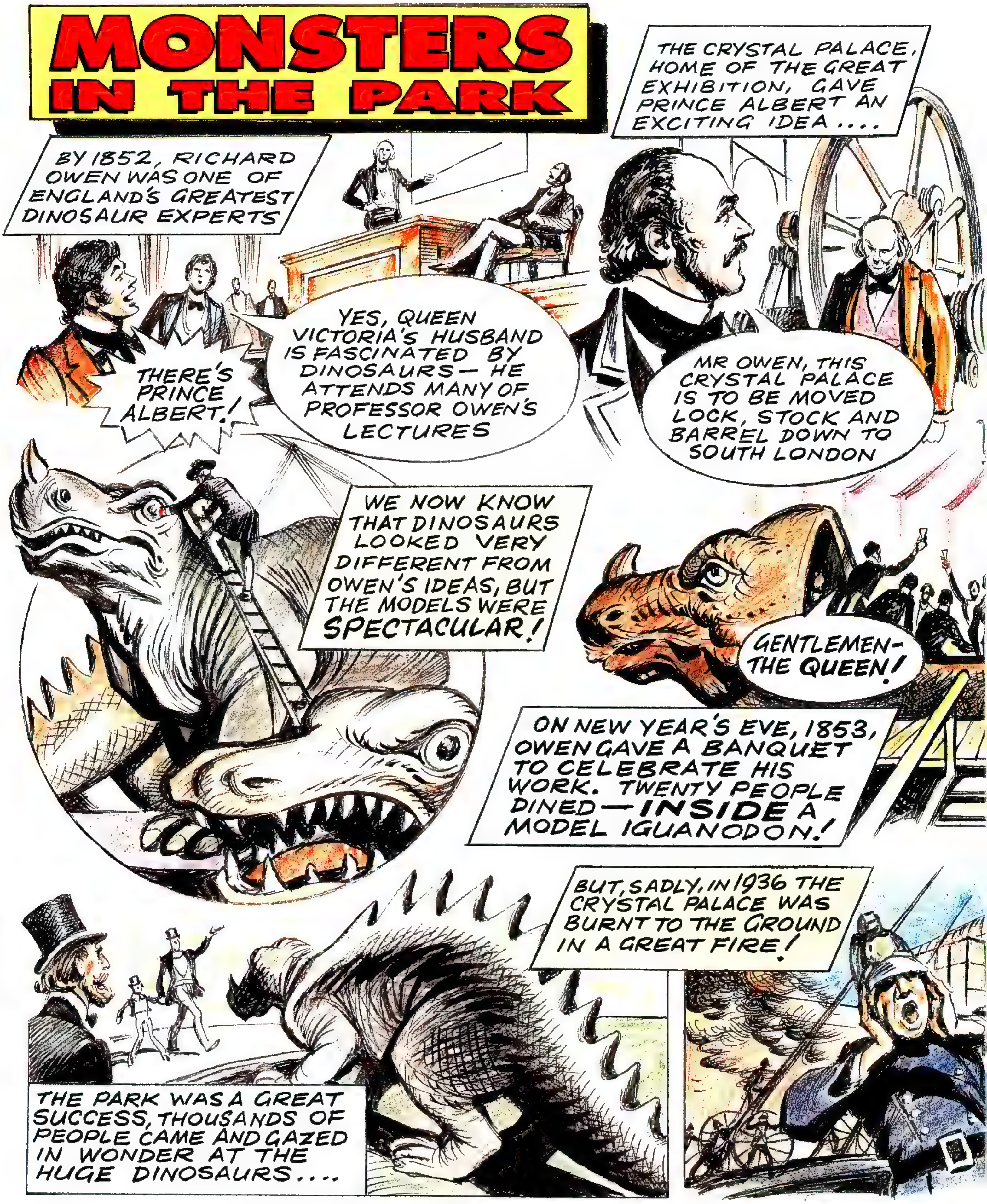


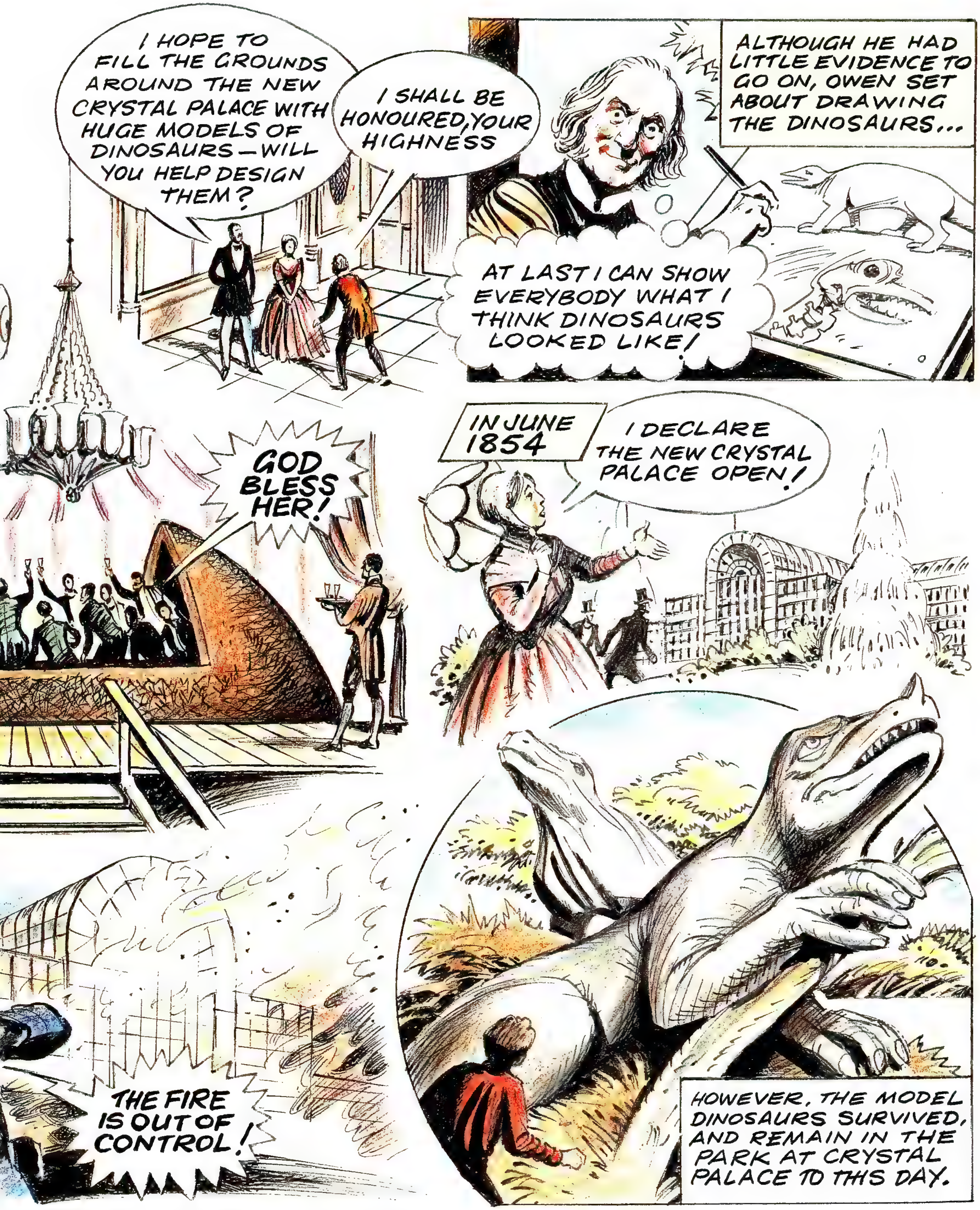
IT'S A FACT

IMPORTANT DINOSAUR FINDS

Dinosaur	Named
Megalosaurus	1824
Iguanodon	1825
Hadrosaurus	1858
Stegosaurus	1877
Diplodocus	1878
Triceratops	1889
Brachiosaurus	1903
Tyrannosaurus rex	1905
Ankylosaurus	1908
Pachycephalosaurus	1943
Baryonyx	1986

MONSTERS IN THE PARK


BY 1852, RICHARD OWEN WAS ONE OF ENGLAND'S GREATEST DINOSAUR EXPERTS
THERE'S PRINCE ALBERT!
YES, QUEEN VICTORIA'S HUSBAND IS FASCINATED BY DINOSAURS— HE ATTENDS MANY OF PROFESSOR OWEN'S LECTURES
THE CRYSTAL PALACE, HOME OF THE GREAT EXHIBITION, GAVE PRINCE ALBERT AN EXCITING IDEA....
MR OWEN, THIS CRYSTAL PALACE IS TO BE MOVED LOCK, STOCK AND BARREL DOWN TO SOUTH LONDON
WE NOW KNOW THAT DINOSAURS LOOKED VERY DIFFERENT FROM OWEN'S IDEAS, BUT THE MODELS WERE SPECTACULAR!
GENTLEMEN- THE QUEEN!
ON NEW YEAR'S EVE, 1853, OWEN GAVE A BANQUET TO CELEBRATE HIS WORK. TWENTY PEOPLE DINED—INSIDE A MODEL IGUANODON!
THE PARK WAS A GREAT SUCCESS, THOUSANDS OF PEOPLE CAME AND GAZED IN WONDER AT THE HUGE DINOSAURS....
BUT, SADLY, IN 1936 THE CRYSTAL PALACE WAS BURNT TO THE GROUND IN A GREAT FIRE!


I HOPE TO FILL THE GROUNDS AROUND THE NEW CRYSTAL PALACE WITH HUGE MODELS OF DINOSAURS — WILL YOU HELP DESIGN THEM?
I SHALL BE HONOURED, YOUR HIGHNESS
ALTHOUGH HE HAD LITTLE EVIDENCE TO GO ON, OWEN SET ABOUT DRAWING THE DINOSAURS...
AT LAST I CAN SHOW EVERYBODY WHAT I THINK DINOSAURS LOOKED LIKE!
GOD BLESS HER!
IN JUNE 1854
I DECLARE THE NEW CRYSTAL PALACE OPEN!
THE FIRE IS OUT OF CONTROL!
HOWEVER, THE MODEL DINOSAURS SURVIVED, AND REMAIN IN THE PARK AT CRYSTAL PALACE TO THIS DAY.

Improve and test your knowledge with...

DINO Fact File

Follow the footprints to complete the quiz and get to the bottom of the question!

1 How long were the horns above a *Triceratops'* eye?

a) up to 2m long
b) up to 1.5m long
c) up to 1m long

2 What is a herbivore?

a) an animal that eats herbs
b) an animal that eats plants
c) an animal that eats meat

A giant human?

A dinosaur bone was discovered in 1677 in Oxford, England, but nobody knew what it was. It was thought that the huge bone belonged to a giant human.

Dinosaur footprints

In Australia, scientists found 3,300 footprints left by 30 different dinosaurs. The dinosaurs have yet to be found.

6 How did *Camptosaurus* escape from its enemies?

a) it changed colour
b) it hid
c) it ran away

7 What is the Cretaceous?

a) a flying reptile
b) a period in Earth's history
c) a plant

8 When did birds first appear on Earth?

a) in the Jurassic
b) in the Triassic
c) in the Cretaceous

Stampeding dinosaurs

The bones of a whole herd of Centrosaurus were found together. Some bones were broken and trampled as if the dinosaurs had been in a stampede. Scientists think they died when they were trying to cross a raging river.

9 Where do experts look for fossils?

a) under the sea
b) in cliffs, quarries and mines
c) in the street

Antarctic dinosaurs

Only two dinosaurs have been found in Antarctica so far. The first was found in 1988 and is an ankylosaur (armoured dinosaur). It hasn't yet been given a name. The second, related to Hypsilophodon, was discovered in 1989.

10 Why did *Diplodocus* have such a long neck?

a) so that it could bite its tail
b) so that it could touch its toes
c) so that it could feed from tall trees

3 What happened when a *Triceratops'* teeth wore down?

a) it stopped eating
b) it died
c) new teeth grew in their place

4 How fast could *Struthiomimus* run?

a) up to 40km/h
b) up to 50km/h
c) up to 70km/h

5 What did *Camptosaurus* use its bony beak for?

a) to chop off ferns and palm leaves
b) to attack other dinosaurs
c) to dig up insects

Late arrivals

If you imagined all the time since life began on Earth as twelve months of the year, the dinosaurs would have appeared in early August and died out in late November. Humans only appeared at the very last moment on 31st December.

The first eggs

The first dinosaur nest and eggs were found in Mongolia by American explorer Roy Chapman Andrews. The eggs belonged to Protoceratops. Before this, scientists had no idea how dinosaurs were born.

Dragon or dinosaur?

Many people think that the legend of the dragon began about 2,000 years ago, when huge bones were dug up in China. They were dinosaur bones but people at that time did not know that dinosaurs had ever existed.

Definitely a dragon

Answers to the questions on inside back cover

A to Z OF DINOSAURS AM – AP

AMMOSAURUS **205 MYA**

The first bones of *Ammosaurus* (*am-oh-saw-rus*) were found in Connecticut, USA. Its name means 'sand lizard'. *Ammosaurus* could walk upright on its back legs, or on all fours. It was about 2.5m long and had large hands with strong claws.

ANATOTITAN **68 MYA**

Anatotitan (an-at-oh-tie-tan) means 'gigantic duck', because this dinosaur had a duck-like bill. It had 1,000 teeth to chew its food. It was about the length of three cars and walked on its two powerful back legs.

ANCHICERATOPS **75 MYA**

Anchiceratops (an-ki-serra-tops), meaning 'close-horned face', was about the length of a coach. It had two long horns above its eyes and a short horn above its nose. The bony frill around its neck had lots of knobs and backward-pointing spines on it. Scientists think that *Anchiceratops* recognised each other by their frills. *Anchiceratops* lived in North America and was a plant-eater.

ANCHISAURUS **205 MYA**

Anchisaurus (an-ki-saw-rus) lived in north-east America and South Africa. Its name means 'near lizard', but it was much bigger than most lizards are today. It grew to about 3m, the length of a small car. *Anchisaurus* was an agile dinosaur that could escape quickly from its enemies. It had strong claws on its front legs and may have eaten plants or meat.

ANKYLOSAURUS **80 MYA**

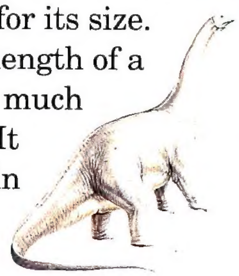
Ankylosaurus (an-ky-lo-saw-rus), meaning 'fused reptile', was built like an armoured tank. Its entire body, including its eyelids, was covered with thick armour-like plates to protect it from meat-eating dinosaurs. *Ankylosaurus* also had a club made of bone, which was as big as a human head, on the end of its tail. It used it as a vicious weapon to hit its enemies. *Ankylosaurus* lived in North America.

ANTARCTOSAURUS **80 MYA**

At 18m, *Antarctosaurus* (ant-arc-to-saw-rus) was a true giant of the dinosaur world. If it were alive today it would be able to see over the top of a four storey building. Its thigh bone was taller than the front door of a house. Its name does not mean that it lived in Antarctica, it simply means 'not a northern lizard'. It lived in many parts of the world, from South America to India.

APATOSAURUS **150 MYA**

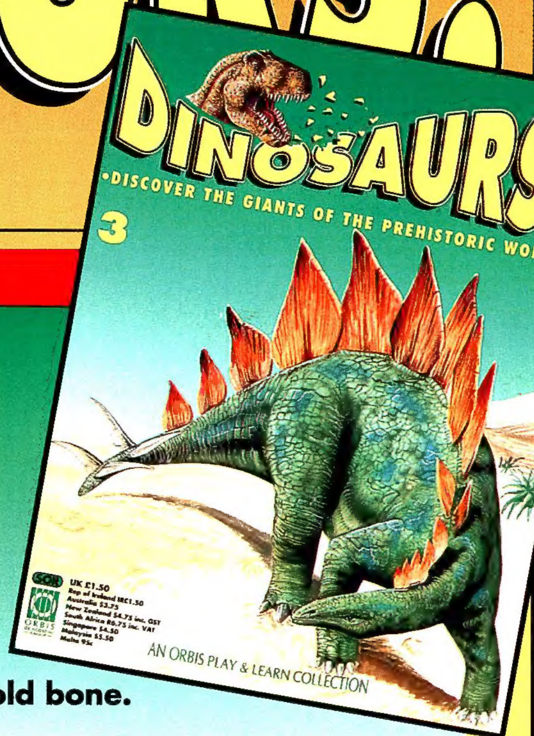
Apatosaurus (a-pat-oh-saw-rus), meaning 'deceptive reptile' was an enormous dinosaur. It was a sauropod and had an extremely heavy body, balanced by a long neck and tail, but its head was very small for its size. *Apatosaurus* was about the length of a tennis court and weighed as much as seven African elephants. It was a plant-eater and lived in North America.



MYA = MILLION YEARS AGO

COMING IN PART 3 OF

DINOSAURS!



DINOSAURS!

•DISCOVER THE GIANTS OF THE PREHISTORIC WORLD•

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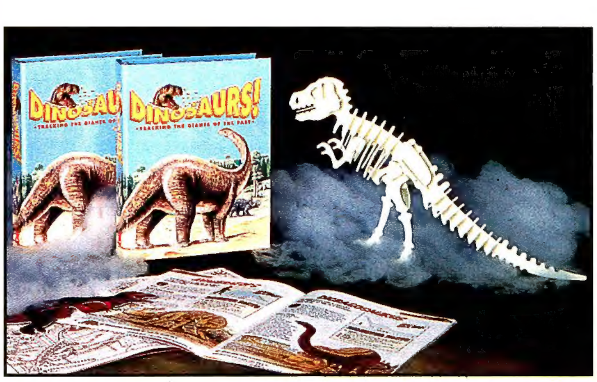

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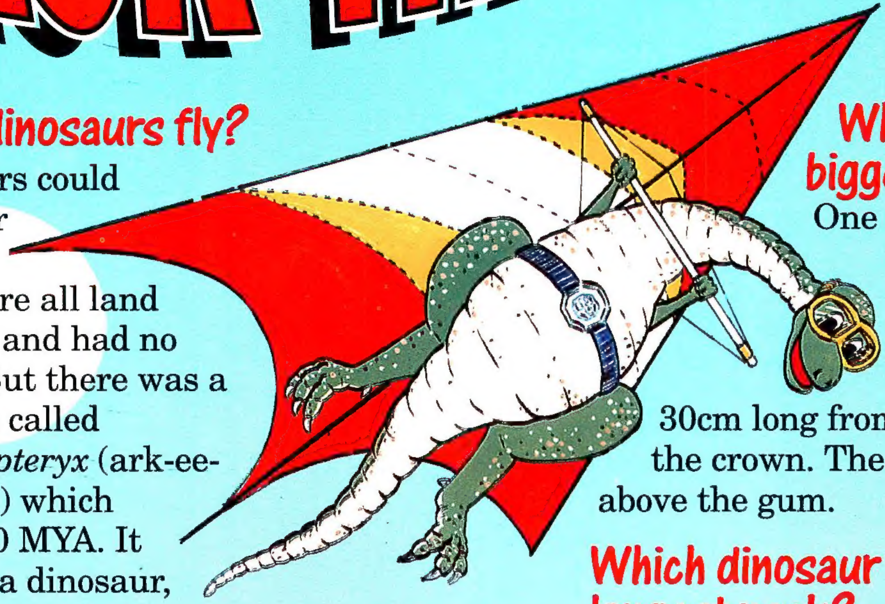
ANSWERS TO DINO FACT FILE QUESTIONS: 1.c 2.b 3.c 4.a 5.a 6.c 7.b 8.a 9.b 10.c

ASK THE EXPERT

Dr. David Norman of Cambridge University answers your dinosaur questions

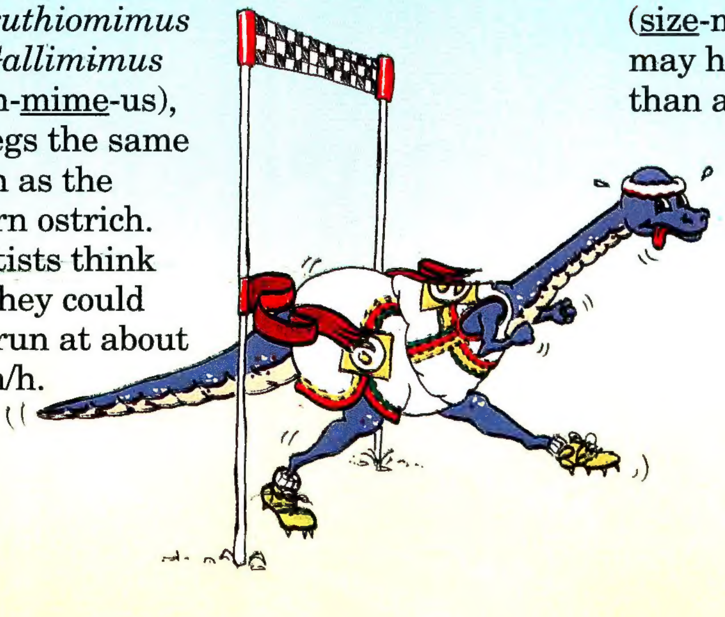


Could dinosaurs fly?

Dinosaurs could not fly or glide. They were all land animals and had no wings. But there was a creature called *Archaeopteryx* (ark-ee-op-ter-ix) which lived 150 MYA. It was not a dinosaur, but experts are not sure whether it was a bird or a reptile. It had feathers and wings and looked like a bird, but it also had the tail, claws and teeth of the early reptiles.

Which was the fastest dinosaur?

Nobody will ever know which dinosaur was the fastest. But some dinosaurs, such as *Struthiomimus* and *Gallimimus* (gal-ih-mime-us), had legs the same length as the modern ostrich. Scientists think that they could have run at about 40 km/h.

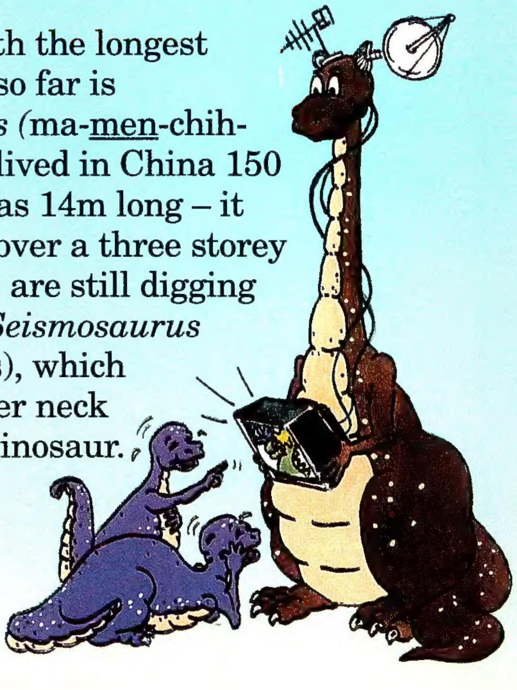


Who had the biggest tooth?

One of the biggest dinosaur teeth known belongs to *T rex*. The teeth at the side of the mouth, near the front, may be 30cm long from the root to the tip of the crown. The tooth could grow 18cm above the gum.

Which dinosaur had the longest neck?

The dinosaur with the longest neck discovered so far is *Mamenchisaurus* (ma-men-chih-saw-rus), which lived in China 150 MYA. Its neck was 14m long – it could have seen over a three storey house. Scientists are still digging up the bones of *Seismosaurus* (size-mo-saw-rus), which may have a longer neck than any other dinosaur.



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